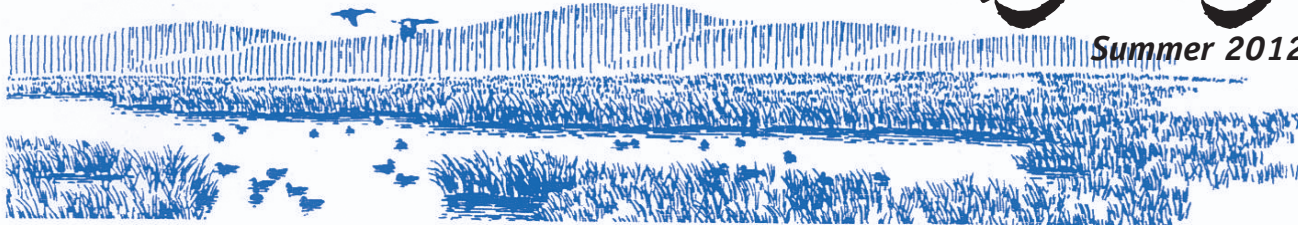


# The Flyway

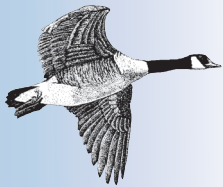
Summer 2012



Quarterly newsletter of Nisqually and Grays Harbor National Wildlife Refuges

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**Save the Date!**  
**Nisqually Watershed Festival will be held Saturday, September 29 at Nisqually NWR.**

## How do Hummingbirds Survive Cold Nights? Hummingbirds and Torpor

By Devorah Bennu

A flash of scarlet and emerald zooms past me as I poke my sleepy head out of the kitchen door, a vibrant splash of summer color against the sullen winter sky. Suddenly, an indignant Anna's Hummingbird, *Calypte anna*, confronts me, beak-to-nose, demanding his breakfast. Shivering, I retreat quickly into the kitchen to prepare warm sugar water for my feathery guest.

Hummingbirds are classified into the avian family, Trochilidae, which is from the Greek word, trochilos, or "small bird." In fact, the smallest avian species alive today is the thumb-sized Bee Hummingbird, *Mellisuga helenae*, found

exclusively on the island of Cuba. With a total length of 2.25 inches (5 centimeters) and a weight of 0.07 ounces (2 grams), this tiny bird can comfortably perch on the eraser at the end of a pencil.

There are more than 330 described species of hummingbirds, and occasionally

a new species is discovered by ornithologists and added to the list. Even though most people think of them exclusively as tropical birds, hummingbirds are found in diverse habitats, ranging from the wettest to the driest, from sea level to over 14,000 feet (4400 meters).



Photo © Ruth Sullivan

Continued on page 2

## 2012 Washington Federal Junior Duck Stamp Results!

The Junior Duck Stamp Design Contest is the culmination of the Junior Duck Stamp educational program. After studying waterfowl anatomy and habitat, students may articulate their newfound knowledge by drawing, painting or sketching a picture of an eligible North American waterfowl species.

This year's contest for Washington, held at the Refuge, received over 180

entries from across the state. The high quality artwork from all the young artists made for a very competitive contest. The judging panel consisted of five judges: Robyn Thorson (Regional Director US Fish & Wildlife Service), Nate Pamplin (WA Department of Fish & Wildlife), Shelley Carr (retired Communications/Community Relations & Arts Director for the Olympia School District and charter member of

Continued on page 3

# Hummingbirds

*From first page*

The greatest diversity of hummingbird species is the neotropics (New World tropics) but many species live in or migrate to temperate zones in the United States and Canada to breed. Sometimes, for reasons that are not entirely clear, individual birds remain behind for the winter, and sometimes, they survive. Thus, as average seasonal temperatures increase, hummingbirds are increasingly becoming established as year-round residents outside of their traditional ranges. Anna's Hummingbird is one species whose range has expanded steadily northward as seasonal temperatures have become milder. Thus, this bird is now a common year-round resident along the northwestern coast of the United States and even into some parts of Canada.

As most people know, hummingbirds feed on flower nectar, which is a tempting "gift" of high-energy

sugars provided by flowers in exchange for pollination. In addition to nectar, hummingbirds also consume large quantities of small insects, which are full of higher-energy fats as well as essential proteins. Because of their tremendous metabolic requirements, hummingbirds have voracious appetites. Equivalent to the average

**To meet this energetic challenge, hummingbirds save enough energy to survive cold nights by lowering their internal thermostat at night, becoming hypothermic. This reduced physiological state is an evolutionary adaptation that is referred to as torpor.**

human consuming an entire refrigerator full of food, hummingbirds eat roughly twice to thrice their own body weight in flower nectar and tiny insects each day.

Besides being among the smallest of all warm-blooded animals, hummingbirds also lack the insulating downy feathers that are typical for many other bird species. Due to their combined characteristics of small body size and lack of insulation, hummingbirds rapidly lose body heat to their surroundings. Even sleeping hummingbirds have huge metabolic demands that must be met simply to survive the night when they cannot forage. To meet this energetic challenge, hummingbirds save enough energy to survive cold nights by lowering their internal thermostat at night, becoming hypothermic. This reduced physiological state is an evolutionary adaptation that is referred to as torpor.

Torpor is a type of deep sleep where an animal lowers its metabolic rate by as much as 95%. By doing so, a torpid hummingbird consumes up to 50 times less energy when torpid than when awake. This lowered metabolic rate also causes a cooled body temperature. A hummingbird's night time body temperature is maintained at a hypothermic threshold that is

barely sufficient to maintain life. This threshold is known as their set point and it is far below the normal daytime body temperature of 104°F or 40°C recorded for other similarly-sized birds.

Research shows that this set point is actively maintained by the bird's internal thermostat. "If you try to cool an animal down below this new set point, it will generate enough body heat to maintain that set point," says Sara Hiebert, hummingbird expert and associate professor of biology at Swarthmore College in Swarthmore, Pennsylvania.

There are several types of torpor, classified mostly by duration and season. For example, when torpor takes place for long periods of time during the winter, it is known as hibernation. However, unlike hibernation, hummingbird torpor can occur on any night of the year so it is referred to as daily torpor or noctivation. Because tropical hummingbird species also have rigid metabolic budgets, even they rely on daily torpor to conserve energy.

Torpid hummingbirds exhibit a slumber that is as deep as death. In 1832, Alexander Wilson first described hummingbird torpor in his book, *American Ornithology*; "No motion of the lungs could be perceived ... the eyes were shut, and, when touched by the finger, [the bird] gave no signs of life or motion."

Awakening from torpor takes a hummingbird approximately 20 minutes. During arousal, heart and breathing rates increase and hummingbirds vibrate their wing muscles. Heat generated by vibrating muscles, or shivering, warms the blood supply. Shivering is sufficient to warm the hummingbird's body by several degrees each minute and the bird awakens with enough energy reserves to see him through to his first feeding bouts of the morning. Interestingly, humming-

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*Save trees, think green*

To receive *The Flyway*  
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*Continued on next page*

# 2012 Washington Federal Junior Duck Stamp Results!

From page 1

Friends of Nisqually NWRC Board of Directors), Dale Thompson (retired Chief Naturalist at Mt. Rainier National Park and local wildlife artist) and Ryan Perry (local wildlife artist and former two-time WA Junior Duck Stamp Best of Show winner).

Judges selected three 1<sup>st</sup> place, three 2<sup>nd</sup> place, three 3<sup>rd</sup> place, and sixteen Honorable Mention winners from four groups based on grade level (K-3, 4-6, 7-9, and 10-12th grade). Out of all the 1st place winners in from each group, a Best of Show was selected to represent Washington at the national competition held on April 20 at Patuxant National Wildlife Refuge in Maryland. This year's 1<sup>st</sup> place winners were Jasmine Wu, Emma Carag, Aiden Bai,

Deborah Yang, Yuan-Ju Tsai, Svetlana Semenova, Charity Young, Melinda Staub, Justin Young, Heidi Christenson, Ye Lim Hwang, and Victoria Moon. The Best of Show winner selected from among these artists depicted a Redhead and was painted by Charity Young, 13 years old, of Camas. Congratu-

lations to Charity Young and all the winners in this year's Washington Junior Duck Stamp Contest!

The exhibit of this year's winners is currently on display in the Auditorium at Nisqually NWR. A traveling exhibit is at Walla Walla Community College's Water and Environmental Center through mid-July, and this exhibit will continue on to Richland Public Library from then until the end of August. In early September and October, the exhibit will travel south to Vancouver for exhibition at the Water Resources Education Center. The traveling exhibit is available for exhibition at art galleries/museums, festivals and fairs. If interested, contact Byrn Watson at (360)736-1082. ✎



*This year's Best of Show, a Redhead by Charity Young*

## Hummingbirds

From previous page

birds reliably awaken from torpor one or two hours before dawn without any discernible cues from the environment. Thus, it appears that the bird's internal circadian clock triggers arousal.

What are hummingbirds doing during those pre-dawn hours when they are warm but not yet active? "One suggestion is that they might be using this time to sleep," explains Hiebert. "Although there is some evidence that torpor is an extension of slow-wave sleep, there is also evidence that the body is too cold during torpor

for the normal functions of sleep to occur."

Torpor is not limited to hummingbirds; it has also been observed in swallows, swifts and poorwills. Additionally, scientists think that most small birds living in cold regions, such as chickadees, rely on torpor to survive long cold nights. Interestingly, even though rodents, bats and other small mammals typically show some form of regulated hypothermia during cold weather, these animals can only rely upon daily torpor during the winter months when they are not breeding. In contrast, noctivation is possible on any night of the year for hummingbirds. Because daily

energy balance is progressively more difficult to maintain as body size decreases, hummingbird torpor is a finely tuned evolutionary strategy that preserves these birds' daily metabolic budgets.

"Hummingbirds are the 'champions' of this kind of energy regulation because they have to be," concludes Hiebert.

*Devorah Bennu currently lives a scientifically interrupted life in NYC with her parrots. She writes the very popular blog, Living the Scientific Life (Scientist, Interrupted), for ScienceBlogs, an online outreach and educational project of Seed Media Group. ✎*

# Summer Programs

## July

**Saturday, July 7**

### ***Birds of a Feather: Take Flight on a Bird Walk***

**10am – 1pm**

Experience the thrill of seeing a Peregrine Falcon (the world's fastest bird) or of hearing a woodpecker pecking away (up to 20 pecks per second)! Join experienced birder Eric Slagle for a guided walk full of the sights and sounds of one of the Refuge's largest treasures: The birds! Meet at the landing overlooking the pond at the Visitor Center.

**Sunday, July 8**

### ***The Nisqually and Medicine Creek: Where Nature, Culture and History Converge***

**1pm - 2:30pm**

Learn about the events surrounding the signing of the Medicine Creek Treaty; explore how the Nisqually people came to the Nisqually delta and how their lives changed with the settlement of Europeans. Lynn Corliss leads you down history's winding path, where you will discover important things about the people who enjoyed this land before you did. Meet at the flagpole in front of the Visitor Center.

**Saturday, July 14**

### ***Birds of a Feather: Take Flight on a Bird Walk***

**8:30am – 12noon**

Experience the thrill of seeing a Peregrine Falcon (the world's fastest bird) or of hearing a woodpecker pecking away (up to 20 pecks per second)! Join experienced birder David Richardson for a guided walk full of the sights and sounds of one of the Refuge's largest treasures: The

birds! Meet at the landing overlooking the pond at the Visitor Center.

### ***How to Keep a Wave on the Sand; Capturing the Outdoors in Photographs***

**10am – 1pm**

Never again let nature's beauty escape your lens! In this hands-on workshop with writer and photographer Greg Farley, you will learn to take your camera off the automatic settings and then head outside to apply basic and professional outdoor photography techniques. Bring your camera (film, DSLR, or point and shoot), extra batteries and a sense of adventure! Meet in the Visitor Center auditorium.

**Sunday, July 15**

### ***It's in Your Nature: Exploring the Wild***

**10am - 11:30am**

From bitterns to butterflies, chickadees to crabapples, the Refuge is home to many types of wildlife. Join naturalist Donna Snow on a nature walk that is sure to teach you something new about the creatures of the Refuge. Meet in the Visitor Center.

### ***The Beauty of Nisqually***

**1pm – 3pm**

From bitterns to butterflies, chickadees to crabapples, the Refuge is home to many types of wildlife. Join naturalist Juni Greenough on this nature walk that is sure to teach you something new about the creatures of the Refuge. Meet at the flagpole in front of the Visitor Center.

**Saturday, July 21**

### ***Birds of Nisqually***

**9am – 11am**

Many species of bird, from the tiny Rufous Hummingbird to the majestic Bald Eagle, nest on the Refuge. Check out the avian beauty with

longtime birder Phil Kelley, who knows the Refuge backwards and forwards. On this guided walk, you are sure to learn something new! Meet at the landing overlooking the pond at the Visitor Center.

**Saturday, July 28**

### ***How to Keep a Wave on the Sand; Capturing the Outdoors in Photographs***

**10am – 1pm**

Never again let nature's beauty escape your lens! In this hands-on workshop with writer and photographer Greg Farley, you will learn to take your camera off the automatic settings and then head outside to apply basic and professional outdoor photography techniques. Bring your camera (film, DSLR, or point and shoot), extra batteries and a sense of adventure! Meet in the Visitor Center auditorium.

### ***It's in Your Nature: Exploring the Wild***

**10am – 12 noon**

From bitterns to butterflies, chickadees to crabapples, the Refuge is home to many types of wildlife. Join naturalists Art Pavey, Jan Kramer and Cheri Greenwood on this nature walk that is sure to teach you something new about the creatures of the Refuge.

**Sunday, July 29**

### ***Nature Up Close; Introduction to Macro Nature Photography***

**10am – 12 noon**

Dew crops on flower petals; the eyes of insects. These details represent the oft overlooked true visual poetry of nature. Join refuge photographer John Whitehead for discussion, demonstration and practice of up close nature photography. Meet in the Visitor Center.

## August

**Saturday, August 4**

### ***Birds of a Feather: Take Flight on a Bird Walk***

**8:30am – 12noon**

Experience the thrill of seeing a Peregrine Falcon (the world's fastest bird) or of hearing a woodpecker pecking away (up to 20 pecks per second)! Join experienced birder David Richardson for a guided walk full of the sights and sounds of one of the Refuge's largest treasures: The birds! Meet at the landing overlooking the pond at the Visitor Center.

### ***How to Keep a Wave on the Sand: Capturing the Outdoors in Photographs***

**10am – 1pm**

Never again let nature's beauty escape your lens! In this hands-on workshop with writer and photographer Greg Farley, you will learn to take your camera off the automatic settings and then head outside to apply basic and professional outdoor photography techniques. Bring your camera (film, DSLR, or point and shoot), extra batteries and a sense of adventure! Meet in the Visitor Center auditorium.

**Sunday, August 5**

### ***It's in Your Nature: Exploring the Wild***

**1pm – 3pm**

From bitterns to butterflies, chickadees to crabapples, the Refuge is home to many types of wildlife. Join naturalist Juni Greenough on this nature walk that is sure to teach you something new about the creatures of the Refuge. Meet at the flagpole in front of the Visitor Center.

**Saturday, August 11**

### ***Birds of Nisqually***

**9am – 11am**

Many species of bird, from the tiny Rufous Hummingbird to the majestic Bald Eagle, nest on the Refuge. Check out the avian beauty with longtime birder Phil Kelley, who

knows the Refuge backwards and forwards. On this guided walk, you are sure to learn something new! Meet at the landing overlooking the pond at the Visitor Center.

### ***Swords and Lace: A Children's Guide to Northwest Plants***

**2pm – 3pm**

This program will engage kids and their families through poetry, art and activities in learning much more than just the names of some cool northwest plants. Author Dixie Havlak guides hands-on investigations that will help kids understand the fascinating variation and other characteristics that define our most interesting local flora. The program will end with a short walk to see which of these plants grow on the delta or the surrounding forests. Meet in the Visitor Center auditorium.



**Sunday, August 12**

### ***The Nisqually and Medicine Creek: Where Nature, Culture and History Converge***

**1pm – 2:30pm**

Learn about the events surrounding the signing of the Medicine Creek Treaty; explore how the Nisqually people came to the Nisqually delta and how their lives changed with the settlement of Europeans. Lynn Corliss leads you down history's winding path, where you will discover important things about the people who enjoyed this land before you did. Meet at the flagpole in front of the Visitor Center.

**Saturday, August 18**

### ***How to Keep a Wave on the Sand; Capturing the Outdoors in Photographs***

**10am – 1pm**

Never again let nature's beauty

escape your lens! In this hands-on workshop with writer and photographer Greg Farley, you will learn to take your camera off the automatic settings and then head outside to apply basic and professional outdoor photography techniques. Bring your camera (film, DSLR, or point and shoot), extra batteries and a sense of adventure! Meet in the Visitor Center auditorium.

### ***Birds of a Feather: Take Flight on a Bird Walk***

**10am – 1pm**

Experience the thrill of seeing a Peregrine Falcon (the world's fastest bird) or of hearing a woodpecker pecking away (up to 20 pecks per second)! Join experienced birder Eric Slagle for a guided walk full of the sights and sounds of one of the Refuge's largest treasures: The birds! Meet at the landing overlooking the pond at the Visitor Center.

**Saturday, August 25**

### ***Birding Basics: Learning to See***

**9am – 11am**

What subtle cues do experienced birders use to quickly and accurately identify species? Birding is nothing less than the art of seeing, so the techniques used by birders increase awareness of all things natural. Refuge Ranger Michael Schramm will guide you through the estuary's diverse habitats on an odyssey of avian discovery, all the while teaching the ins and outs of birding. Meet at the landing overlooking the pond at the Visitor Center – and remember to bring binoculars!

### ***It's in Your Nature: Exploring the Wild***

**10am – 12 noon**

From bitterns to butterflies, chickadees to crabapples, the Refuge is home to many types of wildlife. Join naturalists Art Pavey, Jan Kramer and Cheri Greenwood on this nature walk that is sure to teach you something new about the creatures of the Refuge.

*Continued on page 6*

# Summer Programs

*From previous page*

**Sunday, August 26**

## ***Nature Up Close; Introduction to Macro Nature Photography***

**10am – 12 noon**

Dew drops on flower petals; the eyes of insects. These details represent the oft overlooked true visual poetry of nature. Join refuge photographer John Whitehead for discussion, demonstration, and practice of up close nature photography. Meet in the Visitor Center.

## **September**

**Saturday, September 1**

## ***Birds of a Feather: Take Flight on a Bird Walk***

**10am – 1pm**

Experience the thrill of seeing a Peregrine Falcon (the world's fastest bird) or of hearing a woodpecker pecking away (up to 20 pecks per second)! Join Eric Slagle, an experienced birder who knows the ins and outs of birding at Nisqually, for a bird walk full of the sights and sounds of one of the Refuge's largest treasures (the birds!) Meet at the landing overlooking the pond at the Visitor Center.

## **Sunday, September 2** ***The Nisqually and Medicine Creek: Where Nature, Culture and History Converge***

**1pm - 2:30pm**

Learn about the events surrounding the signing of the Medicine Creek Treaty; explore how the Nisqually people came to the Nisqually delta and how their lives changed with the settlement of Europeans. Lynn Corliss leads you down history's wind-

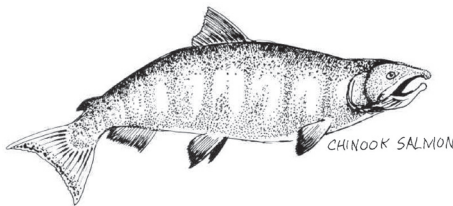
ing path, where you will discover important things about the people who enjoyed this land before you did. Meet at the flagpole in front of the Visitor Center.

**Saturday, September 8**

## ***How to Keep a Wave on the Sand; Capturing the Outdoors in Photographs***

**10am – 1pm**

Never again let nature's beauty escape your lens! In this hands-on workshop with writer and photographer Greg Farley, you will learn to take your camera off the automatic settings and then head outside to apply basic and professional outdoor photography techniques. Bring your camera (film, DSLR, or point and shoot), extra batteries and a sense of adventure! Meet in the Visitor Center auditorium.



**Sunday, September 9**

## ***Our Amazing Plant World***

**1:30pm – 3pm**

Summer is the perfect time to experience the Refuge plant life is all its diversity! Join Sally Vogel on a nature walk through the Refuge—all the while learning about plant-insect interactions, adaptations for survival and other interesting facts. You only live once: Stop to smell the flowers! Meet at the flagpole in front of the Visitor Center.

**Saturday, September 15**

## ***Birding Basics: Learning to See***

**9am – 11am**

What subtle cues do experienced birders use to quickly and accurately identify species? Birding is nothing

less than the art of seeing, so the techniques used by birders increase awareness of all things natural. Refuge Ranger Michael Schramm will guide you through the estuary's diverse habitats on an odyssey of avian discovery, all the while teaching the ins and outs of birding. Meet at the landing overlooking the pond at the Visitor Center – and remember to bring binoculars!

**Sunday, September 16**

## ***The Photographer's Eye: The Basics of Outdoor Photography***

**10am – 12 noon**

Nature photography offers individuals the opportunity to develop their finer naturalist instincts and vision, and the beginner's eye is often the eye that sees most clearly. With this in mind, experienced Refuge photographer John Whitehead offers guidance in technique and composition, with emphasis on learning to utilizing manual settings in order to more completely capture the image you want to capture. Meet at the Visitor Center.

**Saturday, September 29**

## ***Nisqually Watershed Festival***

**10am - 4pm**

Tours and guided walks throughout the day, as well as music, live animal presentations, educational exhibits, a marine touch tank, and Fin, the Wild Olympic Salmon! Join us in a celebration of the cultural, economic and natural resources of the Nisqually Watershed!

**You can also view  
program schedules,  
updates, articles and  
more on our  
new website!**

**[http://www.fws.gov/  
Nisqually/](http://www.fws.gov/Nisqually/)**

## Summer Lecture Series

# Revealing Nature: Our Heritage and Our Future

*The 25th Summer Lecture Series at Nisqually National Wildlife Refuge will be held the last three Wednesday evenings in July and every Wednesday in August.*

**July 11**

### **Living With a Legend** *With a special viewing of "Green Fire: Aldo Leopold and a Land Ethic for our Time"*

Speaker: Estella Leopold, Ph.D.  
Botanist and Conservationist  
Professor Emerita, UW, Department of Botany

**August 8**

### **Climate Change and Impacts in the Pacific Northwest**

Speaker: Ingrid Tohver  
Research Scientist, Climate Impacts Group  
University of Washington

**July 18**

### **A Year With Wolves**

Speaker: Helen Thayer  
Author, Photographer, and Explorer  
Affiliate Professor of Geology,  
University of Alaska

**August 15**

### **Pollutant Soup: Effects of Toxic Mixtures on Fish and their Food**

Speaker: John D. Stark, Ph.D.  
Director, WSU Puyallup Research and  
Extension Center

**July 25**

### **Wildflowers of Mt. Rainier**

Speaker: David Giblin, Ph.D.  
Author, Botanist  
Burke Museum Herbarium  
Collections Manager

**August 22**

### **A Look at Our Migratory Swallows**

Speaker: Frances Wood  
Author, Naturalist  
NPR's "Birdnote"

**August 1**

### **The Buzz about Bees**

Speaker: Rob Sandelin  
Author, Teacher  
Environmental Science School  
Sky Valley Education Center

**August 29**

### **Washington's Not So Common Loon**

Speakers: Daniel and Ginger Poleschook  
Nature Photographers and Conservationists

**Location:** Lectures are held in the Visitor Center at Nisqually NWR. Take 1-5 exit 114 and follow the signs to the Refuge.

**Time:** The lectures start at 7pm and will last approximately 1 hour followed by questions. Doors open at 6pm.

**Entrance Fee:** The Refuge entrance fee is waived for those attending the lectures. The lectures are free.

**Special Accommodations:** Persons with disabilities who require accommodations should contact the Refuge at (360) 753-9467.

**Limited Seating:** The Visitor Center auditorium seats 100 people. Attendance is limited to seats available. Seating will be issued starting at 6pm on a first come basis, and you must be present. If there are

not seats available when you arrive, you will not be able to attend the lecture. The trails are open until sunset.

**Additional Notes:** On lecture nights, the Visitor Center will be open until 7pm and after the lecture. Thanks to Friends of Nisqually NWR for their support of the Summer Lecture Series. ✂

# Shorebird Festival a Great Success!

Shorebird numbers were high this year at the Grays Harbor Shorebird Festival. The spring shorebird migration peaked on Saturday, May 5, when biologists counted some 98,000 shorebirds at Grays Harbor National Wildlife Refuge. Festival sponsors, The City of Hoquiam, Grays Harbor Audubon Society and Grays Harbor NWR estimated 1300 people participated in Festival events. The highlight for many was, of course, seeing the amazing shorebirds on their stopover during their long migration north.

The Festival, held the first weekend in May in Hoquiam, included three action packed days with field trips, lectures, exhibitors, vendors, a banquet, auction and shorebird viewing. Kids and families enjoyed the Nature Fun Fair and the Shorebird Festival Poster Contest Awards Ceremony. The auction raised \$5775 of which \$2675 was donated specially to support the Grays Harbor NWR AmeriCorps Education Volunteer.

The Grays Harbor Shorebird Festival could not happen without a large number of volunteers from several organizations

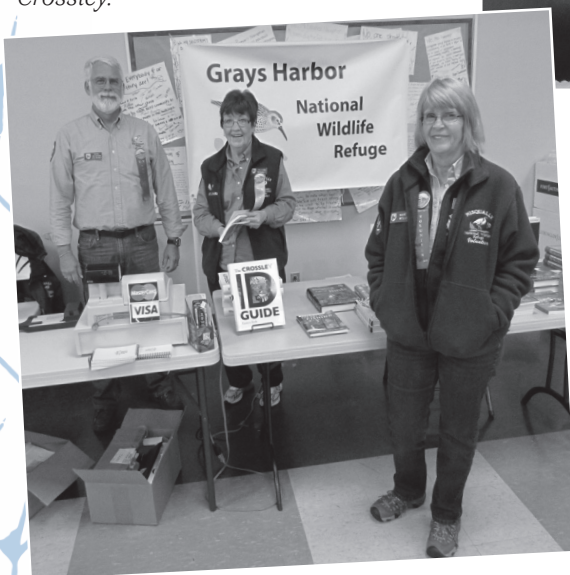
helping to organize the event and working throughout the weekend. A big thank you goes to the volunteers with Grays Harbor Audubon Society, Nisqually and Grays Harbor NWR's, Washington Conservation Corps and the Washington Service Corps/AmeriCorps.

For more details about the 2012 Festival go to: [www.shorebirdfestival.com](http://www.shorebirdfestival.com). Mark your calendars now for the 2013 Festival set for April 26-28, 2013. Start looking for shorebirds returning on their migration south beginning in mid-July. The fall migration lasts though September. ✎



Poster contest Best of Show winner Holly Bergeson with keynote speaker Richard Crossley.

*Below, this year's poster contest Best of Show, a Long-billed Dowitcher by Holly Bergeson.*



Volunteers Mike McMinn, Julianne Boronat and Nancy Wells at the festival.



# New and Renewing Friends Membership

## Membership, Spring 2012

### Senior/Student (\$15)

Marcia M. Mueller  
Chuck Holmquist  
George Schlin  
Greg Baremann  
Larry Russell  
Becky Russell  
Sharon Finn  
Galen Hansen  
Susan I. Hansen  
Gerald Julian  
Christine Mackey  
R. Bruce Mackey  
Elaine Schmidt  
Joyce Danelski

### Individual (\$25)

Anna E. Sumner  
Anne L. Jacobson  
Judith F. Harris  
Merrill Davison  
Carl Anderson  
Rhona Diehl  
Linda Bauer  
John and Karol Satterthwaite

### Family (\$50)

David and Laura Nicol  
Lindsey and Doug Ford  
Beatrice Ashburn  
David and Anne Richardson  
Joe and Kerry Klein  
Wm. Lundt Family  
Phil and Mary Gleb  
Margaret Zobrist

### Supporting (\$100)

Mary L Zimmer  
Doug and Lillian Ryan

### Patron (\$500)

Brain Sullivan and  
Anna Leon-Guerrero

#### Friends of Nisqually NWR

is a 501(c)(3) non-profit organization established in 1998 to promote conservation of the natural and cultural resources and fund education and outreach programs at Nisqually National Wildlife Refuge Complex.

## Join Friends Of Nisqually NWRC!

Name \_\_\_\_\_

Address \_\_\_\_\_

City/State/Zip \_\_\_\_\_

Email \_\_\_\_\_

- ☐ Please send information on making Friends of Nisqually NWRC a beneficiary of my estate.  
☐ Check here to receive an electronic version of *The Flyway* newsletter by email.

### Individual/Family Memberships

- ☐ \$15 Student/Senior  
☐ \$25 Individual  
☐ \$50 Family  
☐ \$100 Supporting  
☐ \$250 Partner  
☐ \$500 Patron  
☐ \$1000 Benefactor

### Corporate/Business Memberships

- ☐ \$250 Business Sponsor  
☐ \$500 Community Partner  
☐ \$1000 Sustaining Business  
☐ \$2500 Corporate Patron  
☐ \$5000 + Corporate Benefactor

Please make checks payable to: Friends of Nisqually NWRC, 100 Brown Farm Rd, Olympia, WA 98516

Your tax deductible contribution will help preserve the unique habitats, fish, and wildlife of the Nisqually Delta and the Grays Harbor Tidelands.

OFFICE USE Rec'd \_\_\_\_\_ Mo \_\_\_\_\_ New \_\_\_\_\_ Renew \_\_\_\_\_ Ent \_\_\_\_\_ Mld \_\_\_\_\_

**Friends of Nisqually  
National Wildlife Refuge**

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Olympia WA 98516

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Olympia WA  
Permit #206

**Return Service Requested**

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*"...conserving, protecting and enhancing fish, wildlife and plants and their habitats for the continuing benefit of the American people..."*

*You are invited to the 25<sup>th</sup> Annual*

# **Nisqually Watershed Festival!**

**Great Fun for the Whole Family:**

- ▶ Music and Live Animal Presentations
- ▶ Tours and Guided Walks throughout the day
- ▶ Great educational displays from around the area
- ▶ Fin, the Wild Olympic Salmon
- ▶ Red Salmon tent, storytelling, and critters parades
- ▶ Marine touch tank
- ▶ Check out the Nature Explore Area for children
- ▶ ***And of course, yummy food!***

**Saturday, September 29  
at Nisqually NWR  
from 10 am-4 pm  
All Events are Free  
(except the food!)**

***Join us and celebrate the cultural, economic, and natural  
resources of the Nisqually Watershed!***

For more information, go to **[www.nisquallyriver.org](http://www.nisquallyriver.org)** or call **(360)753-9467**